What is claimed is:

1. A method for controlling a motor, comprising:

applying a first motor adjustment signal within a first dynamic range of motor adjustment signals to control a flow of current through the motor, the first motor adjustment signal determined in relation to a detected motor velocity error;

when the first motor adjustment signal is proximate a selected one of an upper end or a lower end of the first dynamic range, adjusting the first dynamic range to provide a different, second dynamic range of motor adjustment signals; and

subsequently applying a second motor adjustment signal within the second dynamic range to control application of current to the motor.

2. The method of claim 1, wherein the adjusting step comprises expanding the first dynamic range so that the second dynamic range is larger than the first dynamic range when the first motor adjustment signal is proximate the upper end of the first dynamic range.

3. The method of claim 2, wherein the first dynamic range has a minimum level and a maximum level and wherein the first motor adjustment signal is determined during the adjusting step to be proximate the upper end of the first dynamic range when a magnitude of the first motor adjustment signal is between the maximum level and a threshold level between the minimum level and the maximum level.

4. The method of claim 3, wherein the maximum level is characterized as value D_{MAX} and the threshold level is characterized as a value $(1-[1/N])D_{MAX}$, where N is a constant.

5. The method of claim 1, wherein the adjusting step comprises contracting the first dynamic range so that the second dynamic range is smaller

than the first dynamic range when the first motor adjustment signal is proximate the lower end of the first dynamic range.

6. The method of claim 5, wherein the first dynamic range has a minimum level and a maximum level and wherein the first motor adjustment signal is determined during the adjusting step to be proximate the lower end of the first dynamic range when a magnitude of the first motor adjustment signal is between the minimum level and a threshold level between the minimum level and the maximum level.

7. The method of claim 6, wherein the maximum level is characterized as a value D_{MAX}, the minimum level is characterized as a value D_{MIN} and the threshold level is characterized as a value $(1/N)D_{MAX}$, where N is a constant.

8. The method of claim 1, wherein the first and second dynamic ranges respectively comprise ranges of a digital to analog converter (DAC), wherein the DAC outputs voltages in response to the first and second motor adjustment signals that are compared to a voltage at a node of the spindle motor to control a flow of current through the spindle motor.

9. The method of claim 1, wherein the first and second motor adjustment signals respectively comprise multibit digital values.

10. The method of claim 1, wherein the motor comprises a spindle motor which rotates a magnetic recording disc in a disc drive data storage device.

11. The method of claim 1, wherein the motor uses at least one hydrodynamic bearing to facilitate rotation of the motor, and wherein the applying and adjusting steps are carried out while the motor is rotated at a nominally constant velocity.

12. A motor driver circuit for controlling a motor, comprising:

a digital to analog (DAC) assembly which converts input digital signals to corresponding analog signals over a range of different selectable dynamic ranges;

control logic which generates a first motor adjustment signal within a first dynamic range of the DAC assembly, the first motor adjustment signal generated in relation to a velocity error of the motor, wherein the DAC assembly outputs an analog voltage in response to the first motor adjustment signal to control flow of current through the motor;

selection circuitry which adjusts the DAC assembly to a second dynamic range when the first motor adjustment signal is proximate a selected one of an upper end or a lower end of the first dynamic range so that a subsequent second motor adjustment signal generated by the control logic is provided within the second dynamic range.

13. The motor driver circuit of claim 12, wherein the second dynamic range is larger than the first dynamic range when the first motor adjustment signal is proximate the upper end of the first dynamic range.

14. The motor driver circuit of claim 12, wherein the second dynamic range is smaller than the first dynamic range when the first motor adjustment signal is proximate the lower end of the first dynamic range.

15. The motor driver circuit of claim 12, wherein the selection circuit determines the first motor adjustment signal to be proximate the upper end of the first dynamic range when a magnitude of the first motor adjustment signal is between a maximum level of the first dynamic range and a threshold level between the maximum level and a minimum level of the first dynamic range.

16. The motor driver circuit of claim 12, wherein the selection circuit determines the first motor adjustment signal to be proximate the lower end of the first dynamic range when a magnitude of the first motor adjustment signal is

between a minimum level of the first dynamic range and a threshold level between the minimum level and a maximum level of the first dynamic range.

17. The motor driver circuit of claim 12, further comprising a filter which filters the first and second motor adjustment signals.

18. A disc drive, comprising:

a spindle motor configured to rotate a magnetic recording disc on which user data are stored by a data transducing head; and

a motor control circuit coupled to the spindle motor, comprising:

a digital to analog (DAC) assembly which converts input digital values to corresponding analog voltages over a range of different selectable dynamic ranges;

control logic which generates a first motor adjustment signal within a first dynamic range of the DAC assembly, the first motor adjustment signal generated in relation to a velocity error of the spindle motor, wherein the DAC assembly outputs an analog voltage in response to the first motor adjustment signal to control flow of current through the spindle motor; and

first means for adjusting the DAC assembly to a second dynamic range when the first motor adjustment signal is proximate a selected one of an upper end or a lower end of the first dynamic range so that a subsequent second motor adjustment signal generated by the control logic is provided within the second dynamic range.

19. The disc drive of claim 18, wherein the first means comprises a selection circuit coupled to the control logic, wherein the selection circuit determines the first motor adjustment signal to be proximate the upper end of the first dynamic range when a magnitude of the first motor adjustment signal is between a maximum level of the first dynamic range and a threshold level between the maximum level and a minimum level of the first dynamic range, and wherein the selection circuit determines the first motor adjustment signal to be proximate the lower end of the first dynamic range when a magnitude of the first motor adjustment signal is between the minimum level and a threshold level between the minimum level and the maximum level

20. The disc drive of claim 19, wherein the selection circuit comprises a programmed servo processor device.